

www.ijip.in | ISSN 2348-5396 (e), ISSN: 2349-3429 (p)

Volume 3, Issue 3 May 2016 | Special Issue

# EMOTIONAL EXPERIENCE AND EXPRESSIONS

MUKUNDAN C. R

Scan this code in  
your smart phone and  
Submit Your Paper



The International Journal of  
**INDIAN PSYCHOLOGY**

ISSN 2348-5396



9 772348 539009



The International Journal of  
**INDIAN PSYCHOLOGY**

Volume 3

**I s s u e 3**

**Emotional Experience and Expressions**

April to June, 2016

Mukundan C. R.

## THE INTERNATIONAL JOURNAL OF INDIAN PSYCHOLOGY

This Issue (Volume 3, Issue 3, Special Issue) Published, May, 2016

-----

### Headquarters;

REDSHINE Publication, 88, Patel Street, Navamuvada, Lunawada, Gujarat, India, 389230

Customer Care: +91 99 98 447091

Copyright © 2016, IJIP

No part of this publication may be reproduced, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without the prior written permission of RED'SHINE Publication except under the terms of a RED'SHINE Publishing Press license agreement.

-- -- -- -- --

ISSN (Online) 2348-5396

ISSN (Print) 2349-3429

ZDB: 2775190-9

IDN: 1052425984

CODEN: IJIPD3

OCLC: 882110133

WorldCat Accession: (DE-600) ZDB2775190-9

ROAR ID: 9235

Impact Factor: 4.50 (ICI)

ISBN: 978-1-365-08783-7 (eBook)

-- -- -- -- --

Price: 500 INR/- | \$ 8.00 USD

2016 Edition

Website: [www.ijip.in](http://www.ijip.in)

Email: [info.ijip@gmail.com](mailto:info.ijip@gmail.com) | [journal@ijip.in](mailto:journal@ijip.in)

Please submit your work's abstract or introduction to ( [info.ijip@gmail.com](mailto:info.ijip@gmail.com) | [www.ijip.in](http://www.ijip.in))

**Publishing fees, ₹ 500 OR \$ 15 USD only (online and print both)**

The Editorial Board is comprised of nationally recognized scholars and researchers in the fields of Psychology, Education, Social Sciences, Home Sciences and related areas. The Board provides guidance and direction to ensure the integrity of this academic peer-reviewed journal.

**Editor-in-Chief :**

**Prof. Suresh M. Makvana, PhD**

*Professor, Dept. of Psychology, Sardar Patel University, Vallabh Vidhyanagar, Gujarat,  
Chairman, Board of Study, Sardar Patel University, Gujarat State,  
INDIA*

**Editor :**

**Mr. Ankit Patel,**

*Clinical Psychology*

*Author of 20 Psychological Books (National and International Best Seller)*

INDIA

**Editorial Advisors :**

**Dr. D. J. Bhatt**

*ex. Head, Professor, Dept. of Psychology,  
Saurashtra University, Rajkot, Gujarat  
INDIA*

**Dr. Tarni Jee**

*President, Indian Psychological Association (IPA)  
Professor, Dept. of Psychology, University of  
Patana, Patana, Bihar,  
INDIA*

**Prof. M. V. R Raju,**

*Head & Prof, Dept. of Psychology, Andhra  
University, Visakhapatnam  
INDIA*

**Dr. John Michel Raj. S**

*Dean, Professor, Dept. of Social Science, Bharathiar  
University, Coimbatore, Tamilnadu,  
INDIA*

**Prof. C.R. Mukundan, Ph. D, D. M. & S. P**

*Professor Emeritus / Director, Institute of  
Behavioural Science, Gujarat Forensic Sciences  
University, Gandhinagar, Gujarat.  
Author of 'Brain at Work'  
INDIA*

**Co-Editor(s):**

**Dr. Samir J. Patel**

*Head, Professor, Dept. of Psychology, Sardar Patel  
University, Vallabh Vidhyanagar, Gujarat,  
INDIA*

**Dr. Savita Vaghela**

*Head, Dept. of Psychology, M. K. Bhavanagar  
University, Bhavnagar, Gujarat,  
INDIA*

**Dr. Sangita Pathak**

*Associate Professor, Dept. of Psychology, Sardar  
Patel University, Vallabh Vidhyanagar, Gujarat  
INDIA*

**Dr. Ashvin B. Jansari**

*Head, Dept. of Psychology, Gujarat University,  
Ahmadabad, Gujarat,  
INDIA*

**Prof. Akbar Husain (D. Litt.)**

*Coordinator, UGC-SAP (DRS - I) Department of  
Psychology, Aligarh Muslim University, Aligarh  
INDIA*

**Associate Editor(s):****Dr. Amrita Panda**

*Rehabilitation Psychologist, Project Fellow, Centre for the Study of Developmental Disability, Department of Psychology, University of Calcutta, Kolkata  
INDIA*

**Dr. Pankaj Suvera**

*Assistant Professor, Department of Psychology, Sardar Patel University, Vallabh Vidhyanagar, Gujarat,  
INDIA*

**Dr. Raju. S**

*Associate Professor, Dept. of Psychology, University of Kerala, Kerala,  
INDIA*

**Dr. Ravindra Kumar**

*Assistant Professor, Dept. of Psychology, Mewar University, Chittorgarh, Rajasthan,  
INDIA*

**Dr. Shashi Kala Singh**

*Associate Professor, Dept. of Psychology, Ranchi University, Jharkhand  
INDIA*

**Dr. Subhas Sharma**

*Associate Professor, Dept. of Psychology, Bhavnagar University, Gujarat  
INDIA*

**Dr. Yogesh Jogasan**

*Associate Professor, Dept. of Psychology, Saurashtra University, Rajkot, Gujarat,  
INDIA*

**Editorial Assistant(s):****Dr. Karsan Chothani**

*Associate Professor, Dept. of Psychology, C. U. Shah College, Ahmadabad, Gujarat,  
INDIA*

**Dr. R. B. Rabari**

*Head, Associate Professor, SPT Arts and Science College, Godhra, Gujarat,  
INDIA*

**Dr. Milan P. Patel**

*Physical Instructor, College of Veterinary Science and A.H., Navsari Agricultural University, Navsari, Gujarat,  
INDIA*

**Dr. Priyanka Kacker**

*Assistant Professor, Neuropsychology and Forensic Psychology at the Institute of Behavioral Science, Gujarat Forensic Sciences University, Gandhinagar, Gujarat.  
INDIA*

**Dr. Ajay K. Chaudhary**

*Senior Lecturer, Department of Psychology, Government Meera Girls College, Udaipur (Raj.)  
INDIA*

**Dr. Shailesh Raval**

*Associate Professor, Smt. Sadguna C. U. Arts College for Girls, Lal Darwaja, Ahmedabad, Gujarat.  
INDIA*

**Dr. Thiyam Kiran Singh**

*Associate Professor (Clinical Psychology), Dept. of Psychiatry, D-Block, Level- 5, Govt. Medical College and Hospital, Sector- 32, Chandigarh  
INDIA*

**Mr. Yoseph Shumi Robi**

*Assistant Professor, Department of Educational Psychology, Kotebe University College, Addis Ababa, KUC,  
ETHIOPIA*

**Dr. Ali Asgari**

*Assistant Professor, Department of Psychology, Kharazmi University, Somaye St., Tehran,  
IRAN*

**Dr. Asoke Kumar Saha,**

*Chairman & Associate Professor, Department of Psychology, Jagannath University, Dhaka-1100,  
BANGLADESH*

**Peer-Reviewer(s):****Dr. Mahipat Shinh Chavada**

*Chairman, Board of Study, Gujarat University,  
Gujarat State  
Principal, L. D Arts College, Ahmadabad, Gujarat  
INDIA*

**Dr. Navin Patel**

*Convener, Gujarat Psychological Association (GPA)  
Head, Dept. of Psychology, GLS Arts College,  
Ahmadabad, Gujarat,  
INDIA*

**Dr. M. G. Mansuri**

*Head, Dept. of Psychology, Nalini Arts College,  
Vallabh Vidhyanagar, Gujarat,  
INDIA*

**Dr. Bharat S. Trivedi**

*Head, Associate Professor , Dept. of Psychology, P.  
M. Pandya Arts, Science, Commerce College,  
Lunawada, Gujarat,  
INDIA*

**Reviewer(s):****Lexi Lynn Whitson**

*Research Assi. West Texas A&M University,  
Canyon,  
UNITED STATES*

**Dr. Rūta Gudmonaitė**

*Project Manager, Open University UK, Milton  
Keynes, England,  
UNITED KINGDOM*

**Dr. Mark Javeth**

*Research Assi. Tarleton State University,  
Stephenville, Texas,  
UNITED STATES*

**Online Editor(s):****Dr. S. T. Janetius**

*Director, Centre Counselling & GuidanceHOD,  
Department of Psychology, Sree Saraswathi  
Thyagaraja College, Pollachi  
INDIA*

**Dr. Vincent A. Parnabas**

*Senior Lecturer, Faculty of Sport Science and  
Recreation, University of Technology Mara, (Uitm),  
40000 Shah Alam, Selangor.  
MALAYSIA*

**Dr K. Parameswaran**

*Professor, Symbiosis Law School, Pune  
(International Law, Jurisprudential Psychology of  
Penology and Victimology),  
INDIA*

**Dr Amita Puri**

*Associate Professor, Dept of Behavioral Sciences,  
Amity University, Gurgaon,  
INDIA*

**Deepti Puranik (Shah)**

*Assistant Director, Psychology Department, Helik  
Advisory LimitedAssociate Member of British and  
European Polygraph Association.  
INDIA*

**Mr. Ansh Mehta**

*Autism & Behavioral Science, George Brown  
College,  
CANADA*

**Dr. Santosh Kumar Behera**

*Assistant Professor, Department of Education,  
Sidho-Kanho-Birsha University, Purulia, West  
Bengal,  
INDIA*

**Heena Khan**

*Assistant Professor, P.G. Department of  
Psychology, R.T.M. Nagpur University, Nagpur,  
Maharashtra,  
INDIA*

**Nayanika Singh**

*Assistant Professor, Department of Psychology at  
D.A.V. College, sector-10, Chandigarh.  
INDIA*

**Dr. Soma Sahu**

*Lecturer, Teaching Psychology, Research  
Methodology, Psychology Dept. Bangabasi College,  
Kolkata  
INDIA*

**Dr. Varghese Paul K**

*Head, P.G. Dept. of Psychology, Prajyoti Niketan  
College, Pudukad,  
Aided & Affiliated to University of Calicut, Kerala,  
INDIA*

**Vishal Parmar**

*Forensic Psychology, Institute of Behavioural  
Science, Gujarat Forensic Sciences University,  
Gandhinagar, Gujarat.  
INDIA*

**Ajay Chauhan**

*Clinical Psychology, Sardar Patel University,  
Vallabh Vidyanagar  
INDIA*

# Message from the Desk of Editor

---

This gives me an immense pleasure to announce that ‘RED’SHINE Publication, Inc’ is coming out with its third volume of peer reviewed, international journal named as ‘The International Journal of Indian Psychology. IJIP Journal of Studies’ is a humble effort to come out with an affordable option of a low cost publication journal and high quality of publication services, at no profit no loss basis, with the objective of helping young, genius, scholars and seasoned academicians to show their psychological research works to the world at large and also to fulfill their academic aspirations.

The International Journal of Indian Psychology welcomes submissions that explore the social, educational and psychological aspects of human behavior as related to human. Because The International Journal of Indian Psychology takes a broad and inclusive view of the study of both psychology and social science, this publication outlet is suitable for a wide variety of interests. Appropriate submissions could include general survey research, attitudinal measures, research in which criminal justice practitioners are participants, investigations into broad societal issues, or any number of empirical approaches that fit within the general umbrella provided by the journal.

At last, our thanks go out to the members of the journal who have done their best to work at this collaborative effort. May you continue in this wonderful spirit, which, we are sure will sustain your efforts in the future towards enhancing and enriching this journal.

**Prof. Suresh Makvana, PhD<sup>1</sup>**  
(Editor in Chief)

---

<sup>1</sup> ksmnortol@gmail.com





### **Disclaimer**

The views expressed by the authors in their articles, reviews etc in this issue are their own. The Editor, Publisher and owner are not responsible for them. All disputes concerning the journal shall be settled in the court at Lunawada, Gujarat.

The present issue of the journal is edited & published by RED'SHINE Publication (A unit of RED'MAGIC Networks. Inc) at 86/Shardhdha, 88/Navamuvada, Lunawada, Gujarat-India, 389230

### **Copyright Notes**

© 2015; IJIP Authors; licensee IJIP. This is an Open Access Research distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any Medium, provided the original work is properly cited.



[www.ijip.in](http://www.ijip.in)





**Prof. C.R. Mukundan** has been working in the area of Cognitive Neuroscience since 1964 and he set up the first cognitive electrophysiology laboratory at the National Institute of Mental Health & Neuro Sciences, Bangalore, India in 1975. He conducted research in the area with a team of faculty and students from the Departments of Clinical Psychology, Psychiatry, Neurology, Neurophysiology, and Neurosurgery. They worked on EEG with computerized analyses, Evoked, and Event Related Potential paradigms in schizophrenic patients, patients with alcohol dependence and patients with traumatic brain injury, etc. for the next 3 decades. His latest experimental work was in the area of testing the EEG and ERP activation patterns in remembrance of experiences, and he succeeded in developing a technology, which came to be called Brain Electrical Oscillations Signature (BEOS) profiling. The patented technology has been since used as an aid for forensic investigation. Other than the original normative study, several hundreds of cases have been examined by the test and it has successfully helped the investigators to identify real perpetrators, and the results helped exoneration of innocent individuals. The technology that he started trying out, when he was in NIMHANS, got the software developed by Axxonet Technology Solutions in Bangalore. The technique helps to test different possible formulations and different roles played by the individuals suspected or accused to be involved in an act. The important advantage of the test is that it does not expect any behavioural or oral response from the individuals when they are expected to listen to set of verbal probes during the test. Further, the system presents the probes only if the subject is attentive. The system automatically conducts extensive signal analyses to determine presence of sensory registration, semantic processing, accessing source memory, attentional shift, presence of imageries, and emotional responses using frequency and time domain analyses of EEG after determining their statistical significances.

He has been working on understanding cognitive processing methods. He was one of the first few who reported on the sequential and simultaneous nature of signal inputs into the brain and their differential effects on the development of processing methods in the brain. The neuropsychological tests that he developed in the early 1970s had shown that encoding in both visual and verbal tasks could be impaired in left frontal lesions. Similarly, he had developed tests of working memory and used it as a sensitive test in frontal lobe lesion patients. The Brain Function Therapy system that he developed for computerized cognitive retraining has been since then, extensively used for cognitive training of children with learning disorders, ADHD, and patients with addiction and traumatic brain injury.

He assembled EEG amplifiers for his laboratory in the 1980s, and published the first research papers using computed EEG analysis, EP, and ERP measures from India. His work supported the notion of automatic initiation or neurogenesis of actions, which helped the postulation that action is automatically initiated when emotional arousal reaches a Critical Level of Potentiation. He suggested strict social conditioning as the only neurodevelopmental method

and remedy for training in the control of emotional arousal in individuals, which would beneficially help the society, as individuals would learn to control themselves by blocking asocial behaviour. He has been working on the role of emotion for a decade, though could come out with an explicit theory only now, which is considered an alternative to consciousness.

Since March 2013, he is working at Institute of Behavioural Science, Gujarat Forensic Sciences University, Gandhinagar, Gujarat as the Director and Emeritus Professor. In this short duration he has established state of the art Neurocognitive Electrophysiology Laboratory at IBS. The lab consists of 32, 64 channels EEG and ERP systems, Neurofeedback systems, Polygraph and BEOS systems, and Brain Function Therapy for cognitive retraining programs. He started India's first Neuropsychology and Forensic Psychology postgraduate courses, which are flourishing under his guidance. He has organized various seminars, conferences, and workshops in the area of Neuro and Forensic Psychology at IBS. He is also conducting various training programs for Neuro/Forensic psychologists and police officers across the country at IBS. He has also established the Cognitive Neuroscience Society of India (CNSI) in 2014. He is the first President of the society. He has published several original research papers in peer-reviewed journals. He has written three books in his areas of interest.

## **EMOTION**

Emotional experiences and emotional responses have been mostly considered a psychobiological phenomenon, which man genetically acquired from the animal world. Animals require emotionally controlled behavior for dealing with the survival needs, in terms of needs for food, safety, and sexual gratifications. These emotional responses may often occur without perception or awareness of the presence of the causative stimulus, which we have called processing of the unconscious mind. Outside this realm, man cognitively processes every emotional state and response, and labels them, which may be considered to have positive or negative effects on the individual and others. However, we are aware that the same emotional arousal is the driving force in every individual, and that man cannot lift even a little finger without emotional arousal. This phenomenal role of emotion has been largely ignored and many of us do not care for the proper emotional development of a child and strategic and sincere application of emotional arousal in the later years. The whole emphasis on the mind of man has been invested in many, on consciousness, which today we know is a mere fallacy. Learning to control emotional arousal is a basic lesson of social conditioning, which gives man ability to control thinking, actions and responses. Without emotional controls, actions and responses are automatically initiated, when the emotional arousal reaches certain critical level. Without emotional arousal man is a vegetative system, not capable of thinking, acting, and responding. Thinking and creating indeed form the foundation of growth for man.



## ABSTRACT

Emotional arousal is an experience, and when its effects and directions are cognitively processed by an individual, emotion attains positive or negative valances. Emotional arousal in its nascent state serves essentially as a driving force, for triggering responses, and initiating and executing actions for various navigational purposes in life. Individuals identify emotion, its effects, and expressions through neurocognitive processing, which serves the same purpose with regard to processing of all sequential and simultaneous signal inputs into the brain. Recognition and semantic processing are the main neurocognitive processes that take place within the brain, by which all signals received from outside and generated within the system are processed. Some of these issues were considered in the earlier article on emotion (Mukundan 2016). All sensory-motor processing for establishing contacts with reality, critical thinking using verbal awareness, and other creation and use of nonverbal knowledge base within the brain take place only, if they are emotionally induced. This article deals with issues of cognitive appraisal of emotional arousal, when cognitive processing, responses, and actions take place from the brain. Individuals in the society form a system with purpose, goals, action plans, and their executions, other than responding to polyvagal inputs for survival purpose, as and when required. Emotional arousal serves as the driving force in each individual generating all survival responses and facilitates all those processes required for semantic creations, critical thinking, and execution of actions within the domain of existing realities and creation of new realities. Emotional arousal is experienced as a common driving force, in each of these endeavors. The presence of drive is identified as a need for an act, and we cognitively label the drive as positive or negative emotions depending on the purpose served by them. This capability develops from the early neurodevelopmental stage, and later uses of different emotional labels become a common practice. Experiencing emotional arousal in its nascent state, without any cognitive labelling is unique, especially for an adult brain. One can experience and know it in that form, only when it is aroused without any personally beneficial acts or when one learns to identify it by separating it from personal benefits for which it may be used. One could learn to move into such an experiential state by engaging oneself in active mental processing, devoid of personal beneficial thoughts and actions, as in meditation and when engaged in playing/singing and listening to music, etc. If persistent efforts are made, one can learn to isolate and identify emotional arousal as the driving force within, for utilizing and directing physical energies and physiological mechanisms for executing actions, for the system to navigate and achieve various goals in life.

**Keywords:** *Emotional arousal, purposes, goals in life, cognitive labelling, positive, and negative emotions, experiential contacts and verification of reality, experience of emotion*



## EMOTIONAL AROUSAL

Two important aspects of emotion are its experience and expressions. Emotional experience is unique subjective phenomenon. Individuals are trained to experience emotions from childhood in a positive or negative manner. All emotional experiences and expressions are cognitively channelized and labelled in positive or negative directions as indicative of acceptability, aggression, fear, fight, flight, anger, joy, elation, happiness, sadness, etc. Emotion is experienced in its nascent form as a state of arousal by the self, which drives him into activities. Without emotional arousal, the individual gets into a vegetative state, even though all other neurocognitive functions including verbal awareness are present. Without emotional drive, one does not use his creative cognitive capabilities or engage himself in actions and responses. Emotional drive is needed even for carrying out even small movements. Despite having physical energy and a complex motor system for carrying out actions, with cognitive plans to achieve specific goals in life, any action will emerge only if the person has emotional drive. Emotional arousal serves as a psychobiological fuel for the living being to respond and act. The bipolar nature of emotional expressions indicate the mental state of the individual, his satisfaction and joy in what he has achieved in life, and sadness and suffering when he fails to achieve the same goals in life. Any reaction to the outside world is considered emotional reaction. According to Indian Philosophy (Ramaprasad 2003), desire is the root cause of emotional arousal. Desire is expressed as emotion and attachment. Bhagavatgeeta describes expressions and experiences of emotions in a threefold manner in sattva, rajas, and 'tamas', which are essentially qualities or 'gunas' considered present in all individuals. A 'guna' or quality may mean personality, innate nature of an individual, style of functioning of an individual. The experience of attachment that one develops with an emotional arousal and the subsequent need one experiences to possess continuously the same experience, renders an emotional arousal a need or desire of the person. Desire is the subjective evaluation and acceptance of the presence of a need for a specific experience or possession. A desire fulfilled and the associated transcoded thoughts take individual to depth of emotional experience, which may provide him with pleasure and satisfaction or pose a threat and disaster to the individual. The cognitive processing associated with the need for an experience, the consequences of the efforts in that direction may color the emotional experience, and they are recognized as feelings by the individual. The feelings may be in the spectrum of disappointments, pain, sadness toward one extreme, and feelings of success, joy, and pride directed to the opposite extreme. The strategies used for cognitive assessment are learnt and controlled by the strength of personal needs developed, and personal efforts one may invest for achieving the results.

The most significant endeavor is to find the nature of emotional arousal in its nascent form, that one can experience before any cognitive processing is attempted for labelling or encoding the target specific arousal and the related experience. The first question that needs to be asked is about the necessity of identifying emotional arousal, in its nascent form, or is it that cognitive labelling is a routine strategic functional deployment for enhancing the utilization of emotional arousal. Most important functional utility of emotional arousal is that it has been

identified from the very early days of presence of man, as mentioned in the earlier scriptures that emotional arousal was always identified as the driving force in a living being. It is the driving force of emotional arousal that contributes to the initiation and execution of all actions and responses, some of which are considered to have positive effects and some have negative effects for the individual. Being emotionally aroused and utilizing the emotional arousal for achieving goals in life may be defined as the purpose of life. There would have been no issue about this at all, but for the fact that failures are common and they may take away the strength to live. Equally difficult is the need and demand that purpose and goals of life for each person must be decided by himself, and both success and failure need to be defined by himself. However, religion, society, and social groups play crucial roles in some of these decision-making, sometime temporarily or often permanently, rather than individually.

Happiness in its nascent form may be present from birth, which is further shaped by personal satisfaction and failure to meet needs and material possessions of life. One learns to experience happiness as a resultant feeling of elation, when various possessive states occur. Discomfort and associated feelings may naturally occur in the life of a growing child. However, the child may not know how to express emotions of joy and satisfaction unless he is trained by the expressions of the parents or caregiver. This training may naturally occur if the parents caring for the child express joy and happiness in the responses of the child. The affected individual learns to identify and label them using the knowledge of causative factors and develop positive or negative attitudes and feelings towards them. Experience of emotion in such situations may manifest in intense manner with accompanying behavioral expressions. In fact, the word emotion is commonly used only when such positive or negative effects are coupled with experience of emotional arousal. Individuals learn to attribute positive or negative effects to all states of emotional arousal, from early years, and they may identify them as personal gains or losses, which shape their life prospects. Loss of ability to be emotionally aroused, coupled with severe cognitive appraisals of losses may result in some of the negative emotions, viz., sadness, depression, etc. On the other hand, excessive emotional arousal accompanied by cognitive appraisals of threat and need for self-defense may result in aggressive experiences and outbursts. Normally we are concerned about emotions in one, only when the emotional expressions become intense, causing difficulty for normal living of the self and for others.

### **BASIS OF EXPERIENCE**

Sensory-motor contacts made by a system with reality, available only with the organs of the system, constitute the basis of an experience. Its interpretations are again unique as they are made the knowledge base available in the system, which may be based on the personal significance of the contacts by the system. Experience constitutes knowledge of or knowing both the contacts and their interpretations by the system, which may be unique for each system, as the same experience cannot be shared with another system. One is seldom trained to experience emotion outside personal gains and losses, unless one makes special effort to get into a mental state like the one, which one may continuously achieve during meditation, praying, or

listening to and singing/playing some forms of music. What is described in Sanskrit, by the word “bhakti” is the typical such emotional effects of devotion and love, which one may struggle to develop in life, and may produce while listening to devotional music. In fact, this may be considered the foundation of the entire Bhakti yoga or movement. Such effects may be produced by spiritual music in all languages and it has been practiced and listened to by people all over the world from the very early days. Listening to such auditory signals produces immense tranquility and peace in the minds of people, which may be considered the nascent experience associated with emotional arousal triggered by the music. Other sensory-motor contacts do have much greater survival significances and hence they may be cognitively molded by other experiences of life. Emotional arousal therefore facilitates not only achieving personal gains, but also facilitates navigation for achieving goals. What contribute to the experience of emotion without any accompanying cognitive appraisal is merely the effects of arousal or drive. Adding a cognitive component to this state is an art one must learn while growing up. The most fundamental of these is a state of curiosity, as exploration and discovery are basic psychobiological requirements for survival. Curiosity is strengthened and shaped into specific domains during the developmental stages. Curiosity may also be strengthened by the needs of life, supported by parents, siblings, teachers, and peer groups. Curiosity and exploration can be trained to become a personal need, allowing one to apply all the emotional drive to achieve those targets in life. Learning to shape emotion in this manner, while applying it as a driving force in life for navigation is an extremely important personal and social need of human beings. However, all individuals may not succeed and reach their best of efficiency in channelizing drive in the paths available. Another equally important ability is that of cognitive processing, and the efficiency levels achieved may vary from person to person. One may have to choose between personal satisfaction and approval from others along with the strength of these effects would decide the choice of the path. Utilization of the fuel of emotion by engaging in creative thinking and actions may often help create a new world with greater comforts. These creative efforts using emotional drive are behind every invention, discovery, adventures, and every achievement of mankind. On the other hand, there may be demands for actions, which may have no personal significance, and one may have to execute them as a matter of duty. The sense of duty then induces the drive for one to act, which one may execute well or at the lowest to best levels of efficiency.

Emotional arousal may be present continuously and it propels the living being, in the wakeful condition, into multiples of actions of explorations and adventures, including creative thinking and communication. Initiation of actions and their execution are primary scope of life of a human being, which can be achieved only by deploying emotional arousal intelligently. Executing actions has been always considered the foundation of life for a human being, as he is expected to achieve various goals of life only through those actions. Knowing how actions are executed and what man should execute are questions of different domains requiring different types of processing. The former needs scientific understanding whereas the other requires understanding of purposes of life. This has been highlighted thousands of years before, when the

concepts of Karma Yoga and Raja Yoga, etc. were developed, as actions were proposed as the major means for man to achieve goals of life. It is indeed amazing that these psychobiological needs and executive strategies for man were conceptualized long before the scientific bases for the same were derived. Execution of all actions needs mental as well as physical capabilities, starting with emotional arousal as the drive for carrying out the process of execution. Some of these may be intense expressions, emotionally triggered for survival needs. Responses related to anger, aggression, fear, flight, and fight may be needed for survival needs related to hunger and safety. Sexual needs may be equally strong and significant for human beings, though they are conditioned to achieve this satisfaction in socially accepted manner. Some break this social rule and become a concern for the laws of the society. Complex varieties of actions initiated by emotional drive produce various reactions, which we learn to experience by choosing a label, what each may consider appropriate from multiple arrays of feelings. This is the juncture when we differentiate emotion from feeling. Emotional arousal takes place in the limbic system, whereas feelings are the outcome of neurocognitive processing of the personal and social effects, which is created at the cortical level. Actions may be automatically triggered by drive, as it reaches a Critical Level of Potentiation (Mukundan et al. 2014). This processing is composed of cognitive judgements of the effects of the emotional arousal experienced by the individual and others. Feeling has been projected as a subjective experience of the emotional arousal effects, as the molding of emotion is cognitively done by the individual. Finally, all these effects merge into a total emotional experience of the individual. The same emotional arousal may be subjectively experienced differently by another, depending on the differences in the cognitive judgements of the actions/responses initiated. Feelings may be decided by the meaning one encodes or creates to the signals received or generated within the brain, during an experience. Encoding in this context may be influenced by anticipated effects and actual experiences of the effects of the signals, as they are received or generated. The cognitive interpretation leads to responses as already conditioned in the system, which may significantly change across individuals and situations. The total behavioral effect of emotional experience is thus cognitively determined, and one may develop the adjunct feelings, supporting the cognitive appraisal and motor responses initiated. It is now well established that changing the cognitive evaluation arrived by one could change the effects of emotional arousal and their behavioral effects in an individual. Such measures are routinely practiced for helping affected individuals, who may otherwise suffer emotionally and behaviorally.

### **EMOTIONAL RESPONSES**

Emotions have been traditionally identified as an experience and expression of a living system. Continuous and intense labelling of emotional experiences and expressions has upheld extreme emotions as reactions of the systems to the changes detected outside. The driving force of emotion was not recognized earlier, as other spiritual entities, such as the soul and consciousness have been considered responsible for driving the life of an individual. Emotion was always considered an experience and expression, which needs to be always kept under control, as its expressions might exceed limits and become harmful. Emotional expressions were

considered only indicators of satisfaction, pleasure and joy or that of disappointment, displeasure, anger, and need to fight, etc. The role of emotional arousal as basic functional property of the system needed for initiating and executing actions was not considered earlier, until the same was scientifically proposed and considered in the recent years.

Emotional arousal is always seen in a newborn child, who may cry when subjected to physical discomforts produced by hunger and thirst, or physical pain. Physical discomfort gives rise to unpleasantness in the infant triggering emotional expressions. On the other hand, a content baby may remain silent, though may make eye contacts, and may make social smiles. These may be followed by gestures and sounds of satisfaction and later by recognition of familiarity, expressions of need for approval, and separation anxiety etc. The growing child may gradually learn to withstand some of the discomforts and learn to disassociate mental unpleasantness from the physical discomfort. The same child may express emotions of comfort, which we may readily identify as being happy. Crying is indeed an expression of discomfort and objections, whereas expression of happiness may be subtle, occurring independently, even though its experience may be marred by occasional or continuous discomforts. The profiles of emotional experience and expressions of an individual change, as he grows up and acquire greater experiences in life. Happiness may occur even without any specific behavioral manifestation. Sri Aurobindo called this primary emotional state of happiness, described in the Indian Vedas, as 'Ananda' and considered Ananda a natural state of human beings. According to him and Swami Vivekananda, pain and pleasure are the emotional variations that human beings learn to develop and choose according to their life habits. Both pleasant and unpleasant emotional experiences were considered transient ones, and every person must learn to overcome their alluring effects in life. However, emotion was considered a response state of the living system in a recent or remote past, and not as a primary driving force of the system, which we have been considering only in the last few decades.

Within neuroscience, the emotional arousal has been described as a functional state produced by the interaction of the Limbic System with the Reticular Activating System (RAS), the brainstem, the autonomic nervous system, and the endocrine system. The RAS is the sleep - wakefulness system, which controls alertness-arousal level in a subject. The brainstem engaged in the production of different neurotransmitters, functionally interconnects the entire cortex. There have been several theoretical formulations, starting with James-Lange theory (Cannon, 1927; Le Doux 1996), Yerkes - Dodson law (Yerkes, Dodson 1908), Masters and Johnson's (1966) sexual response cycle describing the different emotional states associated with these complex systems. Porges (2001, 1998) proposed a polyvagal theory of emotion with three systems of emotional regulation with specific effects on the autonomic nervous system. The first stage is characterized by depression of metabolic activity and behavioral freezing. The second stage was proposed to increase sympathetic activity and flight or fight behavioral expressions in life-threatening conditions, and the third phylogenetic approach described environmental engagement through socialization, managed through facial expressions and modulated speech. The processes within these systems control motivation, pursuits of actions, flight-fight responses,

sexual responses, attention and cognitive processing strategies, etc. Emotional arousal has been always considered a highly complex functional state, because of its association with complex cognitive and motor processes initiated. Emotional arousal is indeed different from wakefulness and alertness, as emotional arousal has a driving effect, which is not present in mere wakefulness and alertness. The driving force triggers actions by the individual. It is dependent on the cognitive judgements of the signal inputs and the emotional effects of the actions and responses made by the individual.

### **EMOTIONAL AROUSAL AS DRIVE FOR ACTIONS AND RESPONSES**

We know very little about primary emotional arousal, when it is devoid of cognitive labels revealing the self-experienced effects and effects on interpersonal relationships, which might have been initiated by an emotionally triggered response. Emotional arousal may be a natural primary driving force, which may appear as just excitement or urge in a living being. A human being finds several types of activities, which enhances his emotional arousal in the forms of happiness and excitement. Frequent engagement in such activities enhances emotional arousal. A child may learn such engagements fast, which in turn facilitates emotional arousal in the child. In course of time, engaging in adventurous activities, exploring surroundings, and facilitating interpersonal interactions enhances emotional arousal. Emotional arousal and activities triggered by the arousal, may interact, one enhancing and enriching the other, or they may interact in opposite directions. The relationship between the degree of arousal present and the difficulty-complexity levels of the performance becomes important issue in all cued and navigational tasks, when one must learn to be aroused only to a level, which helps to elicit optimum performance, producing or yielding best of the results (Yerkes – Dodson 1908).

### **COGNITIVE MOLDING OF EMOTION**

Human beings generally do not live under survival threats anymore, as animals may still do in forests. Human beings indeed face physical threats, when they do not abide by rules, which need to be followed while living with the creations they only have made, which have changed the environment. These are the results of personal negligence or ignorance. Cognitive decisions are made while initiating and executing actions as per anticipated and actual effects (Sperry 1950, 1952, Mukundan 2007, 2014). These controls may partially be the resultant of responses/effects produced by the actions, especially in other individuals, who may be associated with similar goals and actions. Cognitive judgments of failures in achieving goals and difficulties of interaction with others may lead to emotional arousal may trigger aggressive behaviour. Some may lose their interest in work and develop negative attitudes to the self, which may produce equivalent negative emotional effects. There is always one's own explanation for the cognitive labels that one may use for explaining own emotional experience. Cognitive processing involves assigning meaning to signals received from outside. Meaning is a semantic or symbolic expression of the significance of a signal or sequences of signals one receives from outside or created within as part of inner speech. Creating meaning to relationship between any two signals, may take one to find meaning across sequence of signals over time and space, which

becomes a complex process of semantic processing. Cognitive processes carried out in the brain involve basic sensory processing involving prediction/recognition of inputs, remembrance of related previous experiences if present, and cognitive regulation of the motor effects. Further processing may occur as semantic encoding and transcoding, and critical consideration of the effects of responses and actions initiated. These effects shape, shade, and direct own emotional arousal into further actions. These semantic interpretations and their controls may or not be supported by facts, or may not be interpreted by others in the same direction. Control of actions may take place as per the convenient and beneficial effects one expects, rather than by objective judgments, even though one has the choice to be totally objective and make cognitive judgments and controls accordingly, which may not support own interests. Recognition of affection, sacrifices, and devotion of others may mold the same emotions differently, and their experiences may provide one further strength and self-confidence, which control relationships with others.

### **SEMANTIC PROCESSING IN THE BRAIN**

Human brain has the unique functional capabilities of special speech centers for talking and listening, both vividly interconnected. The classical listening brain is the Wernicke's area, known since 1874, identified in most individuals in the posterior parts of left superior temporal lobe (Bogen, Bogen 1976). The classical talking brain is the Broca's area, known since 1870, has been established in the dominant frontal lobe (Dronkers, et al. 2007; *Grodzinsky, Santi 2008*). Both the systems access the lexical, syntactic, and semantic language systems (Damasio et al. 1996, Damasio 2001), and they are interconnected at the cortical (Anterior Fasciculus) and subcortical levels (Geschwind pathways). The listening system receives direct inputs from the talking system when it is engaged in thinking or speech, producing verbal awareness (Mukundan 1998, 1999). Verbal awareness helps online critical analyses of all that have been encoded and transcoded by the semantic brain, which help in understanding the different effects of the speech-thoughts being created. The two hemispheres engage in sequential and simultaneous semantic interpretations (Mukundan 2015), which form the foundation of cognitive judgements of sensory-motor signals associated with emotional arousal. The meanings created by these systems are not merely based on objective relationships across words and signals. They may often involve the meaning experientially identified by the individual receiving those signals. Signals may be those generated and/or conveyed by other individuals, who have conveyed a specific meaning, which the receiver needs to recreate for comprehending the meaning of the words received. There is strong likelihood of discrepancies in the meanings created by two and more individuals. Signals created by other individuals may be the sum total of their language efforts for creating a meaning for communication, mixed with prosodic - emotional effects that may convey the meanings more emphatically, which the receiver may consider to have special significance. Thus, one may recognize a meaning to which one may want to respond or make behavioral expressions, which one may recognize as indicating closeness - friendliness, love, or dislike, hate, negligence, anger, fear, threat and aggressiveness, etc. These different behavioral effects may be produced by the same emotional arousal utilizing different semantic interpretations. The listener may identify them with the same or different meanings with

emotional expressions, as per their own cognitive processing effects. Recognition may depend on the sensitiveness developed from earlier related experiences, new expectations, and other subjective effects. One may develop this tendency to detect emotional effects in the behavioral expressions of others and attach meaning to such effects. On the other hand, one can learn to change the cognitive effects produced by the meanings received by restructuring the meanings. The therapeutic efficiency of such restructuring has been already well-established (Beck 1993, 2005, 2008; Beck et al. 2001, Beck, Haigh 2014; Clark, Beck 2010; Ellis 1994, 2001; Dryden, Bond 1994; Damasio et al. 1996, Damasio 2001, Hope et al. 2010). Emotion has been already shown to be innately adaptive (Greenberg, 2011, 2015, 2002, Master, Gershman 1983; Elliott 2012), and its direct activation may help avoid origin of other problematic emotions and experiences. However, learning to objectively analyze sequential relationships and identify relationships across various simultaneous inputs, for a final creation of meaning to an experience may be a very difficult task. This will require high degree of objectivity, as one must learn to look at the self and the inputs in objective manner, and inspect the roles of the two beyond one's personally preferred manner. Thinking style can indeed be shaped in a preplanned manner during developmental stages, by parents and teachers. However, when this does not happen, the child learns to develop cognitive strategies on his own and from the experiences with peer groups and others, he may come across. This may result in the development of hostile and aggressive judgments and labeling and experiencing the related emotional arousal, using the same labels.

### **NATURE OF EMOTIONAL AROUSAL**

There is no true equivalent or comparable example for emotion and its experience. A distant but close comparison can be found in the role of fuel used in a vehicle. Without fuel, no vehicle can ever move despite its cost and comforts. Emotion is not generally taken in this way, as all look at emotion as a positive or negative state facilitating or detrimental to own peace of mind and life. Emoting is also considered a useful method for creating positive or negative interpersonal relationships. The earliest scientific description of the role of emotion as a drive or force needed for performance and actions was by put forth by Yerkes and Dodson (1908). We still refer to this model and apply it for explaining the relationship between drive - emotional arousal and level of performance or action output. Emotional arousal serves as a driving force (Mukundan et al. 2014) for one to utilize the physical energy to perform, to move around, respond, and to act for achieving goals. Emotion works as the driving force for employing the physical energy for making complex and critical movements used in dance and music. The same force is utilized for making slow and fast movements, and for moving the limbs for critical performance in games and sports. The art of movements is indeed controlled directly by other areas in the brain. For example, Supplementary Motor Area is well established to carry out the sequencing task of all movements. Emotional arousal or drive is therefore not equivalent to physical strength, but it is a unique psychobiological driving force, without which one cannot carry out any physical or psychological activities in life. Hence, emotion may be considered a work force, without which life is void of actions. Learning to apply emotional arousal in the right



degree is one important aspect of the art of living. The same emotional arousal when coupled with bodily and psychological responses may be experienced as joy, happiness, fear, anger, or aggression. The cognitive appraisal developed or generated by one decides the nature and content of the emotional response or feelings that one experiences. Emotional effects are seen in all responses of flight or fight, aggression, or love and sacrifice.

### **EXPERIENCE OF EMOTIONAL AROUSAL WITHOUT COGNITIVE MOLDING**

Different and away from expressions involving utilization of physical energy, the emotional arousal which one may achieve during meditation and listening to and singing music is exceptional. The mental effects produced during such processing states in the brain are unique. In most of the meditative procedures, attention is shifted from the external world as well as remembrance of experiences. One is trained to focus only on an idea or an active subtle body process. This allows one to withdraw from various cognitive processes that may otherwise automatically take place in a brain, and focus attention to a subtle process, which does not need any further cognitive interpretations. It would give opportunity to experience the accompanying emotional arousal and strengthen it. As the emotional arousal is not used for making any external movements, it is maintained at a subtle level, in a meditative state. One learns to observe and strengthen the emotional drive in its nascent form. Close to meditation, music also has a direct effect to induce emotional arousal and neural binding effects, with minimum cognitive labelling if the music is of subtle nature. The processing of creating and receiving auditory musical signals induce emotional arousal in the brain and the experiences of devotion and happiness. Devotion implies commitment, admiration, dedication, adoration, etc., without expectations of any reward. Spiritual music has therefore a capability to induce happiness and feelings of devotion without ever inducing any strong effects or appraisal in the opposite direction. The rules of using rhythms and tonal changes are only to produce specific musical effects and experiences. One may never be able express verbally the specific nature of emotional arousal and effects produced while listening to or singing music. The emotional relationship becomes specific and revealing when the same is semantically expressed. If emotional effects are expressed musically, it may become subtle and may produce the emotional effects in the person, who expresses it as well as in those who listen to it. However, true musical effects are created while hearing the music and not listening to the semantic interpretations. Semantics used for creating music may or not have any effects on the emotional components induced by the melody and rhythms of the music or it may affect the listener independently. Emotions evoked while listening to or engaged in singing/playing music often categorized spiritual music, as they are created with certain specific tonal qualities, speed and rhythms in all languages in the world, are of unique quality, where all personal relationships and problems may seem to vanish, and peace and tranquility may take over. Listening to music of such qualities may make a person emotional, when he may become happy and may simultaneously shed tears. It is indeed not the semantics that play this role, but the quality of music that achieves such effects. Therefore, singing – praying and listening to such music may serve the purpose of mental training for

achieving peace of mind and enhancing brain resources. The emotional arousal attained may be a sublime state, which one cannot express semantically, but may bring in great peace and creative effects in the individual. There are many studies (Galinska 2015; Chang et al. 2015; do Amaral et al. 2016; Balasubramanian et al. 2016; Hegde 2014; Daniela, Bernd 2014; Croom, 2012; Kraus, Nina, 2010; Wallace et al. 2007; Elvira et al. 2006; Mauk, Buonomano, 2004; Traumo, 2001; Ghazanfar, Nicolelis, 2001), which have shown the effects of music on the neural activation of the left and right brain areas. However, these effects are not discussed in the present context.

During such mental exercises, one may move into isolated emotional arousal state, which may be very indulging, and fully accepted and enjoyed by the person. Cognition of other people and their behavior may cease to have any relevance at that time. Emotional arousal during such processing has been always considered to evoke a positive personal involvement. Constant tendency and inclinations to label emotional arousal using the cognitive strategies easily used by each may prevent us from knowing a different meaning used by another person(s) and its importance. Development of this ability to be emotionally aroused and stay detached without continuously engaging in self judgment and judgment of others, may give immense personal strength and ability to use cognitive judgments and decision making in more critical manner, when needed. Conceptualization that fundamentally different and isolated emotions exist has been highly erroneous. Such thinking led to isolated consideration of different emotions and identifications of their isolated presence, as per the cognitive judgements applied because of need and purpose, direction, and effects of actions, which helped to generate several positive and negative emotional effects. It prevented the understanding of emotional arousal being controlled and directed by cognitive judgments within each living system. Differences in the emotional valences are brought out by the cognitive judgments of the effects of actions and responses that accompany. Man can use emotion primarily as the drive for living and carrying out actions for achieving goals in life, and learn to apply the effects of cognitive judgments of approval and acceptance of own performance by others in more objective manner, instead allowing it to sink or raise the emotional drive and the self to tragic limits.

Entertaining emotional arousal without engaging in cognitive labelling based on the purpose, direction and effects of actions, may help one block or prevent the cognitive effects, and experience the emotional arousal in its most original form. This may gradually help one to use emotional arousal as a positive driving force of life, rather than experiencing it only under the umbrellas created by cognitive judgments. The responses are colored by emotions and they are experienced as actions of aggression, fear, withdrawal, sadness, and multitudes of other commonly experienced and expressed emotional responses. The same emotional state or arousal may be identified by different cognitive labels with which one identifies actions and results of self and others. Ability to detach emotional arousal from the process of cognitive labelling and being molded into positive or negative emotional states help individuals to treat the self objectively. The mental ability to treat the self and others with equanimity, without emotional reactivity would bring in peace of mind to all, and scope to correct as well as carry on responses

and actions for peace, welfare, and growth for all. We could develop affectionate and loving attachments with all for enabling all to live an enduring and peaceful life. On the other hand, cognitively molding of own emotional arousal positively or negatively may help build an emotionally strong individual, who may react with others in specific directions. We have the freedom to critically choose and create meaning using words for explaining the behavior and actions of others, rather than accept meanings from words used by others without such critical appraisal. Emotional experience takes a ride with the meanings and logical fallacies created and entertained. Critical choice of words and semantic interpretations can strengthen emotional arousal, without allowing immature emotional molding taking place. Cognitive processing leading to recognition, semantic processing, defining purpose and goals for life, and initiating and maintaining the navigation process to enable achievement of the goals may then be carried out independently and objectively. One could use all the emotional resources available for driving the self for executing those actions for achievement of the goals.

### **EMOTION DRIVING ACTIONS**

Cognitive judgments of responses and actions and behavior in general constitute an extremely important phase of all executions. Success, growth, and comforts of life are all dependent on wise cognitive decisions, which help to create meaningful and positive changes and new realities. Learning to experience emotional arousal without accompanying destabilizing controls exerted by cognitive judgments, may strengthen the ability of the individual to use emotional arousal knowingly as a drive. One often may make use justifications of intentions and actions, without adequate impartial and objective considerations, for facilitating own comforts and interests. A positive molding of emotion enhances the driving force, even when specific negative effects are expected. However, being locked to such positive effects may take away the ability to maintain objective observations and critical analysis of plans of actions and effects of actions. Such intense emotional molding and the associated experiences are indeed unique to human beings. It may indeed enrich variety of experiences and the beauty of living and creating new human relationships. The same may work in a disastrous manner, when one loses control and insight into the logics of those experiences. Carrying out frequent mental exercises, which help to uncover oneself cognitively, could provide opportunities to experience, and recognize emotional arousal in its nascent form, as well as make objective and critical appraisal of own intentions and actions. This should help and give strength to the individual to restructure the cognitive formats one creates and employs for the interests and protection of the self. All types of meditation procedures or equivalent mental practices like singing, praying, listening to certain types of music, and dancing may help cultivate such ability to experience emotional arousal in its nascent form. This will in turn give increasing ability and strength to make independent objective cognitive judgments, without getting affected by emotional effects created by aggressive and negative judgments. The strength of emotional arousal as a driving force of life can thus be best employed for creative progresses in life. Man has been a victim of releasing excessive emotional arousal and experiencing it, because of absence of cognitive controls and use of erroneous cognitive judgments. We, as a group of individuals or society, still think and

experience the need for waging wars or destroying others, who do not agree with us, for the sake of safeguarding self and own ideas. One has to learn to use the emotional arousal as a positive driving force for establishing all sensory - motor contacts and face challenges in those domains, by directing emotional drive for carrying out critical thinking and executing action plans for achieving peaceful goals in life.

The proposal that emotion is the driving life force, which automatically initiates the neurogenesis of actions, has been already considered (Mukundan 2016). Without emotion, human being would lead only a vegetative life, despite possessing all the basic sensory-motor functions needed for its survival, thinking abilities, and even self and verbal awareness. This proposition does not give scope for any other force like consciousness within the life system. Sensory-motor abilities, ability to recognize, verbal awareness, and critical thinking abilities aiding intellectual functions may all be present in a human being. However, without emotional arousal, he has nothing to carry out in life. He may be easily compared to those patients, who were subjected to psychosurgery (Heller et al. 2006; Mashour et al. 2005; Price et al. 2001; Berrios, 1997). The individual may lead a vegetative life without engaging in responses and actions. Today we are convinced that fight and flight responses can automatically occur without perception and awareness of a stimulus, generated purely on the memory of earlier experiences. Experiencing and controlling emotional arousal through cognitive processes become a habitual and socially accepted pattern in all, and the process gradually becomes a personal strength or weakness in each individual. The behavioral and mental (experiential) effects of erroneous cognitive evaluation, and corresponding controls of the emotional arousal, render an experience a mental and physical (psychobiological) problem to the individual. Experiencing and learning to know emotion in its original form in the body-mind could change the needs of cognitive appraisals and strategies to control the self and the world through emotional reactions and emotion controlled responses. Living then could become peaceful, enjoyable, and creative, where the emotional drive takes each to the heights of positive achievements in life.

### **NEEDS FOR COGNITIVE MOLDING OF EMOTION**

The semantic interpretations made by the brain cover sensations experienced in any part of the body and all motor expressions and their relationships. Emotion is aroused and conditioned by these sensory-motor signals, and the experiencing person interprets and we learn to identify the emotional arousal differently according to the cognitive labels used. Expressions of behavioral excitement associated with success mold emotions as responses of satisfaction, joy, and elation, etc. On the other hand, failures mold emotions as disappointments and sadness, which may in turn, affect behavior in general and thinking. Uncertainty of effects may be interpreted as anxiety. Cognitive molding may be based on experiential effects or identifications of objectively and critically verified units of information. Semantic interpretations may also include effects of erroneous observations, notions, fallacies, and fantasies. One has the choice to engage in critical interpretations, which may include estimation of factors needed for success and evaluation of actual outcome effects of success or failures. Actions leading to rewards and pleasurable experiences cause positive judgments of the emotional arousal. The cognitive

descriptions of the achievements gained by actions controlled by those cognitive processes may further facilitate the generation of the same emotional arousal, resulting in more actions. One longs to experience repeatedly the same state of thrill, even when there may not be any other material gains, other than the thrill of the experience.

Emotional arousal is indeed associated with specific brain areas. However, its development and application strategies change across individuals. Significant psychophysiological and biological changes do occur during emotional responses. Its presence in a person may be determined in terms of the positive and negative effects and the perseveration shown by the person in an activity. One may repeatedly engage in the same activity as it may allow experiencing the same emotional arousal with the same cognitive tones, which may also be linked with desired gains to the individual. Presence of emotional drive may induce a person to struggle in his efforts for achieving desired goals or effects, whereas one without emotional arousal or with poor emotional arousal may hardly work and achieve results, even if he may have higher levels of processing capabilities. This may happen when one is not trained to get emotionally aroused, which may easily occur because of developmental inadequacies. One may end up making lesser efforts and achievements than one is capable, as one may have little drive to use. In simple terms, we can say that a higher level of emotional drive may induce higher levels of work habits, which may help to procure comparable results. Higher levels of cognitive processing abilities with higher levels of drive indeed help enhance higher achievements.

Emotional arousal, which drives one to work hard and achieve is often identified as the desire of the individual for those achievements. Presence of strong desire may enforce compelling pressure on the person to work hard, until one is successful in achieving optimum results. Desire may be for a material possession, possession of status, relationship, to discover, create new realities, and know, or to inflict pain or harm to another. Desire is therefore a cognitive label given to experiential effects of emotional arousal, which is employed for achievements or gains. The activities and goals for achievement that may induce emotional excitements of happiness and satisfaction may indeed be different across individuals. We may doubt and even argue whether it is the emotional arousal generated while working and exploring that induces satisfaction and excitement in people, or the final material gains that one expects to achieve prospectively and its achievement that serve as the force or energy for struggles in life. What is important is the fact that one can learn to work hard, and learn to enjoy working even if the outcome is not always satisfactory or we may not achieve it in our life span. The drive is to make one work and working brings satisfaction, despite the outcome. Working for a particular outcome is easy to learn and carry out. Negative emotions of fear, aggression, anger, hatred, etc. are cognitively assessed differently as per the failures and its effects on the individual. They indeed help create different expressive and experiential effects in each individual. Presence of a desire is indicated by the presence of heightened emotional arousal facilitating actions, which directly or indirectly satisfy the desire.

## **GENESIS OF EMOTION**

We know that emotional arousal is not an automatically generated physiological activation. It does not occur with dispensation of physical energy in the body. There is indeed a strong psychobiological basis for its origin and presence. It is probably more psychological than biological, though the presence of psychological factor has immense direct effects on the physical and biological processes. A growing child must learn to get excited by explorations and adventures while playing and learn to desire for and indulge in those activities for acquiring his goals for becoming emotionally aroused. Development of cognitive processing abilities and the cognitive judgments thereby made contribute to the presence of psychological effects. Presence of emotional arousal and the accompanying human abilities have propelled various kinds of actions and responses, which have helped to create new systems for living. We learn to identify the nonphysical nature of its presence within, as a mystic force. We label it as a psychological or a spiritual power. Cognitive processes are indeed unique and powerful, as they help to develop new ideas/knowledge and create new realities. We have now mastered several dimensions for creating new knowledge bases and have already succeeded in creating new systems. We have already made new machines, instruments, and computers, which can carry out the same critical decision making processes as the brain-mind carry out. However, emotional arousal is unique, and we are still uncertain about its origin in biology and psychology. All behavioral expressions have been now explained as manifestations of emotional arousal. Polyvagal emotions are considered important survival methods among animals. A growing child needs to be trained to develop emotions, and learn to adjudge it positively by associating with positive behavior. Negative emotions may easily develop as responses to unsurmountable stress and failures in life. Emotion receives different cognitive moldings while the person interacts with the world outside and the significance of each contact is personally decided, as well as from the appraisals by others. However, we are interested in understanding the nature of experience of emotion outside all such controls and moldings.

Emotional arousal in its earliest developmental level may be present during initiation of responses and actions for preservation of life. Early emotional response is seen when a child is in pain and needs help and support, or seen as happiness when the child is excited and content. Using emotional arousal as a driving force is the most positive application, which one makes use of throughout life. In its positive form, it is seen as excitement in a child, which propels the child into various adventures and explorations. Greater the emotional arousal, more intense is the behavioral excitement and the more adventurous a child may turn out to be. Emotional arousal may take place in pain, when one attempts to avoid or withdraw from the painful experience. Absence of emotion is not experiential; one can experience emotion only when present. Absence of emotion is suggestive of absence of drive to live. One may learn to carry on with commitments of life even in pain. Emotional arousal facilitates neural activities related to cognitive processing and one learns to create ideas and use the same emotional arousal to initiate actions for building a system, as per the ideas. The creative thinking and actions help to create new realities. Disappointments and failures in life may take away or inhibit the drive in some

individuals, and one may not then find meaning or purpose to live. In such context, one starts thinking negatively and interpreting everything negatively, which contribute to negative mental state and consequent behavioral expressions. They may think in opposite direction and may finally make efforts to terminate own life. On the other hand, failures may enhance emotional arousal in some, which may help them to struggle and finally achieve success. Early childhood experiences and developmental learning facilitate such thinking and practices.

### **EXPERIENCING EMOTION**

Experiencing is the only method available for a living being to contact and verify the realities directly. Primary interaction with reality is through experience. Experiencing is indeed a subjective process. Experiences may obviously vary among different living creatures. Experiences generated through the sensory-motor systems establish reality contacts and help verify the reality through the contacts. The entire process is subjective, as it is the being or the individual who experiences alone has the experiential knowledge of the interpretations of the sensory-motor and cognitive processes, which help to model the experiences. The reality experienced is therefore a subjective one, and known only to the experiencing person. All human beings have their own experiences of the same reality contacts, which they make. On the other hand, scientific verifications of reality are objective and experimental, and do not depend on any experiential confirmations. It needs quantifications and explanations of changes across time and space, independent of subjective experiential approval. What is experienced as subjective reality is only part of this reality, with which the brain can interact using the sensory-motor systems and rational and/or scientific methods of establishing the contacts. Semantic creation of reality is only a fictional creation, until we can create the same for objective verifications.

There are many who believe that objective verifications of all experienced realities are not possible. When confirmation is experiential, one learns to become dependent on experiences and believes in own experiences. This dependency and associated belief develop into a faith in own experience. All experiences gradually induce faith in the experience in the experiencing person, and they are accepted as reality by those who believe in the reality of the same experience, even if they have not experienced it and cannot scientifically explain the phenomenon. Faith in experience is therefore, an important emotional outcome, as experience serves as the subjectively verified reality. They accept components of an experience as reality, as they have faith in their experience, and do not attempt to look for an alternate method to explain or verify objectively an experienced reality. One learns to develop faith in experiences as they help establish contacts with what they accept as reality. This is indeed an experienced reality, which does not require experimental objective verification through logical and critical thinking. Faith is not only a mere outcome of experiencing, but also a feeling of the acceptance of an idea, and hence we may consider an emotional state supporting the experience an idea or semantic expression of reality. Faith serves as the supportive strength for own experiences. Faith in emotional experiences may also work in a compelling negative sense, as it keeps one away from

making objective verifications of experience and knowing more about the reality. Faith may help cultivate standards and styles of living for the self, which may soon be shared by many more individuals. However, faith becomes irrelevant if one depends only on objective verifications. One makes it a habit to carry out objective verifications of experiences and the realities contributing to them, and is prepared to wait for explanations until one succeeds in critically making them.

## **THE EXPERIENTIAL WORLD**

Experiencing is the only essence of being alive, when one makes subjective reality contacts with the world. Experiential explorations are adventurous and there is no equivalent to them in life. Nevertheless, experiencing and experiential knowledge could also be the result of strong suggestions, as in hypnosis (Mukundan et al. 2013; Rainville 2008; Gruzelier 2006, 2000; Spiegel 1989; Spiegel, Spiegel 1978), when critical thinking is blocked, and it is easily substituted by false suggestions or logical fallacies. One may easily develop faith in a mere suggested experience. Emotional arousal is essentially an experiential reality, which can easily be molded by large spectrum of critical and suggestive inputs. An explanation of a reality may be encoded merely using experiential knowledge, which may be erroneous, or through critical thinking using the best of available verified information. The latter method provides all with the best knowledge base and strength as it can be objectively verified. Faith in a noble idea or a force, which may bring individuals closer to one another, may indeed strengthen the mental capabilities and resources of individuals. An experientially proven force or knowledge, which may be unreal and imaginary, may still induce immense emotional strength and courage in an individual. Faith in this sense is not a mere belief, but dispensation of emotion on an idea, which makes it a force of life. There may be no alternate method for a human being for personally contacting reality except through experiencing reality. Despite using all steps of critical thinking and deriving explanations from scientific processes, we all need to experience finally some outcome component, for knowing that it is not merely a logical possibility, but an experiential reality component. Each must learn to use experiences intelligently and learn to live enriched and accomplished life through experiences. Without experiencing, scientific knowledge alone may have no value in life. The pleasure and satisfaction of life come from experiences. The experiential world and its knowledge have gone through sea changes over hundreds of years, and it will keep happening in future too. Each person has his own experiential world, whereas the scientific knowledge of the world is the same, or may become more precise. There is no life or living without experiencing. We create our own beautiful fictional world using experiences and enjoy living it, without creating conflicts with scientific realities. This is what we achieve by possessing the brain-mind.

Emotion of happiness develops in each from birth with least cognitive efforts, whereas other positive and negative emotions are molded gradually using complex cognitive processing of the signals arriving in the brain. We seldom make efforts to experience emotional arousal without cognitive labeling. It is indeed useful and meaningful to label emotion and allow its



applications for driving the self for various specific navigational efforts in life. However, a person who has the knowledge of the mechanisms of these applications can learn to use emotional drive for executing all relevant actions, with objective cognitive processing. An individual can become mindful of the multiple changes that take place within the self and in nature – at physical, and especially at the system level. We may then allow the surge of emotion initiate and maintain those actions, which one may cognitively consider most appropriate, to respond chiefly to those system changes, whether their effects are personally beneficial or non-beneficial and non-acceptable. Instead of considering personal benefits or personal physical comforts, one can accept discomfort and consider it a personal duty to carry out an action, as it may be beneficial to another living being, who may have a greater need for it, or to the system. One can learn to block emotional arousal automatically mounting within and initiating actions, by learning to delay it until critical processing of the entire inputs take place and one makes most appropriate judgment for the given situation. One could train oneself to make independent judgments and then allow emotional surge to occur, which would initiate actions critically adjudged as most appropriate, even if they may be personally no rewarding. Such emotional arousal and actions will take the life system to higher levels of functional balance and existence. Ignoring personal comforts and advantages by initiating an action for the benefit of another is indeed an extraordinary emotional capability, though this may be present in one or even less, in a million people. However, human beings as a society could decide on supporting some of those positive ideas and actions, by imparting training in social value systems to young ones, during their neurodevelopmental period, which help them learn to respect the legitimate rights of others, even if those actions and responses cause inconvenience and discomfort to themselves. This needs training from infancy, for learning emotional regulation of actions according to socially accepted values.

## REFERENCES

- Balasubramanian, S.V., Balasubramanian, G., Ramanathan, G. (2016). Integrative Medicine System Based on Music. *Alternative Therapies in Health and Medicine*, 22 (1):14-23.
- Beck, A.T. (1993). Cognitive therapy: past, present, and future. *Journal of Consulting Clinical Psychology*, 61(2):194-98.
- Beck, A.T. (2005). The current state of cognitive therapy: a 40-year retrospective. *Archives of General Psychiatry*, 62(9):953-59.
- Beck, A.T. (2008). The evolution of the cognitive model of depression and its neurobiological correlates. *American Journal of Psychiatry*, 165(8):969-77.
- Beck, A.T., Haigh, E.A. (2014). Advances in cognitive theory and therapy: the generic cognitive model. *Annual Review of Clinical Psychology*, 10:1-24.
- Beck, A.T., Butler, A.C., Brown, G.K., Dahlsgaard, K.K., Newman CF, Beck, J.S. (2001). Dysfunctional beliefs discriminate personality disorders. *Behavior Research & Therapy*, 39(10):1213-25.
- Berrios, G.E. (1997). The origins of psychosurgery. *History of Psychiatry*, 8 (29): 61–82.
- Bogen, J.E., Bogen, G.M. (1976). "Wernicke's region—Where is it?" *Annals of the New York Academy of Sciences*, 280: 834–43.
- Cannon, W. (1927). The James-Lange Theory of Emotions: A Critical Examination and an Alternative Theory. *The American Journal of Psychology*, 39: 106–24.
- Chang, Y.S., Chu, H., Yang, C.Y., Tsai, J.C., Chung, M.H., Liao, Y.M., Chi, M.J., Liu, M.F., Chou, K.R. (2015). The efficacy of music therapy for people with dementia: A meta-analysis of randomized controlled trials. *Journal of Clinical Nursing*, 24(23-24):3425-40.
- Clark, D.A., Beck, A.T. (2010). Cognitive theory and therapy of anxiety and depression: convergence with neurobiological findings. *Trends in Cognitive Science*, 14(9):418-24.
- Damasio, H. (2001). Neural basis of language disorders. In (Ed.) R. Chapey, *Language Intervention Strategies in Aphasia and Related Neurogenic Communication Disorders*, Philadelphia, PA: Lippincott William & Wilkins (4th ed.), 18-36.
- Damasio, H., Grabowski, T.J., Tranel, D., Hichwa, R., Damasio, A.R. (1996). A neural basis for lexical retrieval, *Nature*, 380, 499-05.
- Daniela, W., Bernd, W. (2014). Music and emotion: A new theory for musical and emotional world. *The International Journal of Indian Psychology*, SI: 1-81.

- doAmaral, M.A., Neto, M.G, de Queiroz, J.G., Martins-Filho, P.R., Saquetto, M.B., Carvalho, V.O. (2016). Effect of music therapy on blood pressure of individuals with hypertension: A systematic review and Meta-analysis. *International Journal of Cardiology*, 3;214: 461-64.
- Dronkers, N.F.,Plaisant, O., Iba-Zizen,M. T.,Cabanis, E. A. (2007). Paul Broca's Historic Cases: High Resolution MR Imaging of the Brains of Leborgne and Lelong. *Brain*, 130 (Pt 5): 1432–41.
- Dryden, W., Bond, F.W. (1994).Reason and emotion in psychotherapy: Albert Ellis. *British Journal of Psychiatry*, 165(1):131-35.
- Elliott, Robert.(2012). Emotion-focused therapy. In (Ed.) Sanders, Pete. *The tribes of the person-centred nation: an introduction to the schools of therapy related to the person-centred approach* (2nd ed.). Ross-on-Wye: PCCS Books.
- Ellis, A. (1994).Reason and Emotion in Psychotherapy: Comprehensive Method of Treating Human Disturbances: Revised and Updated. New York, NY: Citadel Press.
- Ellis, A. (2001). *Overcoming Destructive Beliefs, Feelings, and Behaviors: New Directions for Rational Emotive Behavior Therapy*, Prometheus Books.
- Galińska, E. (2015).Music therapy in neurological rehabilitation settings. *Psychiatria Polska*, 49 (4): 835-46.
- Gruzelier, J.H. (2006). Frontal functions, connectivity and Neural Efficiency Underpinning Hypnosis and Hypnotic Susceptibility. *Contemporary Hypnosis*, 23(1): 15–32.
- Gruzelier, J.H. (2000). Redefining hypnosis: theory, methods and integration. *Contemporary Hypnosis*,17, 51–70.
- Greenberg, Leslie S. (2002). Evolutionary perspectives on emotion: making sense of what we feel. *Journal of Cognitive Psychotherapy*, 16 (3): 331- 47.
- Greenberg, Leslie S. (2012). Emotions, the great captains of our lives: their role in the process of change in psychotherapy. *American Psychologist*, 67 (8): 697– 07.
- Greenberg, Leslie S.(2015). *Emotion-focused therapy: coaching clients to work through their feelings* (2nd ed.), Washington, DC: American Psychological Association.
- Grodzinsky, Y., Santi, A. (2008). *The Battle for Broca's Region. Trends in Cognitive Sciences*, 12 (12): 474–80.

- Hegde, S.(2014). Music-based cognitive remediation therapy for patients with traumatic brain injury. *Frontiers in Neurology*, 24; 5:34, 1-7.
- Heller, A.C., Amar, A.P., Liu, C. Y., Apuzzo, M.L. (2006). Surgery of the mind and mood: a mosaic of issues in time and evolution. *Neurosurgery*, 59 (4):720–40.
- Hope, D.A., Burns, J.A., Hyes, S.A., Herbert, J.D.& Warner, M.D. (2010). Automatic thoughts and cognitive restructuring in cognitive behavioral group therapy for social anxiety disorder, *Cognitive Therapy Research*, 34: 1-12.
- LeDoux, J. (1996). Emotional networks and motor control: A fearful view. *Progress in Brain Research*, 107,437-46.
- Mashour, G.A., Walker, E.E.,Martuza, R.L. (2005). Psychosurgery: past, present and future. *Brain Research Review*, 48 (3): 409–18.
- Masters, W.H., Johnson, V.E. (1966). *Human Sexual Response*. Toronto; New York: Bantam Books, (1981 ed.).
- Master, S., Gershman, L. (1983).Physiological responses to rational-emotive self-verbalizations. *Journal of Behavior Therapy & Experimental Psychiatry*, 14(4):289-96.
- Mukundan, C.R. (2016). Emotion – Arousal and Control. *The International Journal of Indian Psychology*, V3 (2), 1 - 20.
- Mukundan, C.R. (2015). *Brain at Work: Neuroexperiential Perspectives*. Atlantic Publishers, New Delhi.
- Mukundan, C.R., Kamarajan, C., Ajayan, P., Roopesh, B.N., Sharma, M. (2013).Frontal Cortex and Recognition: Neurocognitive Findings of Hypnosis. *Indian Journal of Health & Welfare*, 4 (4): 703 – 10.
- Mukundan, C.R. (2007). *Brain Experience: Neuroexperiential Perspectives of Brain-Mind*. Atlantic Publishers, New Delhi.
- Mukundan, C.R. (1999) *Power of Words: Neuro-cognitive Approach for Understanding Brain Mechanisms of Awareness*. In: Sangeetha Menon, M.G.Narasimhan, A.Sinha, & B.V.Sreekantan (Eds.), *Scientific and Philosophical Studies on Consciousness*. National institute of Advanced Studies, Bangalore, India. 127-136.
- Mukundan, C.R. (1998). From perception to thinking – Verbal adaptation in human brain. In: Isaac, J.R. and Purendu, H. (Eds.) *Proceedings of International Conference on Cognitive Systems*, New Delhi, Allied Publishers, XXXIX -XIII.

- Porges, S.W. (2001). The polyvagal theory: phylogenetic substrates of a social nervous system. *International Journal of Psychophysiology*, 42: 123-46.
- Porges, S.W. (1998). Love: an emergent property of the mammalian autonomic nervous system. *Psychoneuroendocrinology*, 23, 837- 61.
- Price, B.H., Baral, I., Cosgrove, G.R., Rauch, S.L., Nierenberg, A.A., Jenike, M.A., Cassem, E.H. (2001). Improvement in severe self-mutilation following limbic leucotomy: a series of five consecutive cases. *Journal of Clinical Psychiatry*, 62 (12): 925–32.
- Rainville, P. (2008). Hypnosis and the analgesic effect of suggestions, *Pain*, 134(1-2):1-2.
- Sperry, R. W. (1950). Neural basis of the spontaneous opt kinetic response produced by visual inversion. *Journal of Comparative and Physiological Psychology*, 43, 482-89.
- Sperry, R. W. (1952). Neurology and the mind-brain problem. *American Scientist*, 40, 291- 12.
- Spiegel, D. (1989). Cortical event-related evoked potential correlates of hypnotic hallucination. In (Eds.) V. A. Gheorghiu, P. Netter, H. J. Eyesenck, & R. Rosenthal, *Suggestion and suggestibility: Theory and research*, Berlin: Springer Verlag, 155-168.
- Spiegel, H., Spiegel, D. (1978). *Trance and Treatment: Clinical Uses of Hypnosis*, New York: Basic. (Reissued by American Psychiatric Press, 1987).
- Shelia, K. M. (2013). *Introduction to language development*. Los Angeles, Sage.
- Yerkes, R.M., Dodson, J.D. (1908). formation. *Journal of Comparative Neurology and Psychology*, 18: 459– 82.

***Publisher note:***

**Emotional Experience and Expressions**

by **Mukundan C.R.**

Published by **The International Journal of Indian Psychology** ([www.ijip.in](http://www.ijip.in))

Under the **ISSN: 2348-5396**

In Special Issue Criteria: This Special Issue part of Volume 3, 2016

# Emotion

Emotional experiences and emotional responses have been mostly considered a psychobiological phenomenon, which man genetically acquired from the animal world. Animals require emotionally controlled behavior for dealing with the survival needs, in terms of needs for food, safety, and sexual gratifications. These emotional responses may often occur without perception or awareness of the presence of the causative stimulus, which we have called processing of the unconscious mind. Outside this realm, man cognitively processes every emotional state and response, and labels them, which may be considered to have positive or negative effects on the individual and others. However, we are aware that the same emotional arousal is the driving force in every individual, and that man cannot lift even a little finger without emotional arousal. This phenomenal role of emotion has been largely ignored and many of us do not care for the proper emotional development of a child and strategic and sincere application of emotional arousal in the later years. The whole emphasis on the mind of man has been invested in many, on consciousness, which today we know is a mere fallacy. Learning to control emotional arousal is a basic lesson of social conditioning, which gives man ability to control thinking, actions and responses. Without emotional controls, actions and responses are automatically initiated, when the emotional arousal reaches certain critical level. Without emotional arousal man is a vegetative system, not capable of thinking, acting, and responding. Thinking and creating indeed form the foundation of growth for man.

Edited, Printed and Published by RED'SHINE Publication.  
(India) Inc. on behalf of the RED'MAGIC Networks. Inc.  
86: Shradhdha, 88 Navamuvada, Lunawada, Gujarat-389230  
[www.redshinepub.eu.pn](http://www.redshinepub.eu.pn) | [www.ijip.in](http://www.ijip.in)



The International Journal of  
**INDIAN PSYCHOLOGY**  
Volume 3, 2016

Also Available at



Google Books

